

DHR Powder Rheology Accessory

The Powder Rheology Accessory expands the DHR's capabilities to powders, enabling characterization of behaviors during storage, dispensing, processing and end use. Product development and process optimization are accelerated with quantitative measurements of dynamic flowability and shear properties of consolidated powder. Screening incoming raw materials or new formulations detects unexpected behavior to avoid future large-scale production issues and provide granular-level insights into powder morphology variations to enable solutions to challenging processing problems.



Shear

Consolidated powder properties



Flowability

Total Flowability
Energy



Compressibility

Compaction Under
compressive stress



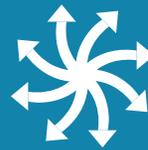
Wall Friction

Powder Wall
Friction Angle



Repeatable Results

Fast, easy, consistent sample loading and automated conditioning reduce variability as low as 0.2%



Extensive Capabilities

Measure powder shear, flowability, wall friction or compressibility under ambient conditions or controlled temperature



Actionable Insights

TRIOS Powder Analysis software simplifies interpretation, reporting key performance indicators in **one click**



For every sample

Switch between liquid, solid and powder samples in <10 seconds to keep up with your lab's changing testing demands.



Temperature-Controlled Powder Rheology

The DHR offers complete powder rheology testing with controlled temperature to predict powder behaviors under a wide range of environmental conditions. The SmartSwap™ Peltier Concentric Cylinder Jacket offers a versatile, convenient, and safe solution for every powder testing method: Shear, Flowability, Wall Friction, and Compressibility.

Powder temperature is controlled through direct conductive heating and cooling. Sample temperature uniformity is achieved through an upper heat shield and composite heat-break geometries preventing thermal gradients. Peltier technology enables sample heating up to 150 °C, and cooling down to -10 °C without the need for liquid nitrogen or mechanical chillers.

Visit www.tainstruments.com/powder-rheology to learn more about powder rheology applications in:

Formulation



In new product development, powder rheology measurements on small lab-scale samples demonstrate impacts of formulation changes on processability and performance, avoiding future large-scale problems.



Pharma

Storage



Hopper and silo designs are optimized to ensure consistent dispensing and avoid blockages, rat-holing or avalanching, using quantitative Shear Cell measurements of consolidated powder.



Advanced Materials

Stability



Changes in powder morphology like caking, agglomeration or segregation may arise during processing or storage. Flow testing detects these instabilities, which compromise processability and product quality.



Batteries

Processing



Screening powder for flowability energy across a wide range of conditions predicts behavior during processes such as feeding, mixing, granulation and mold-filling, ensuring successful processing.

End Use



Products like food and personal care must exhibit expected behavior during use. Measurements of powder characteristics impacting performance help ensure consumer acceptance.